

Demo PDF file. This file includes questions: 10 from 121. Full version of file looks the same as demo, but full version includes all questions. You may download file with all questions by link on bottom of this page

Q312 - Great Lakes Topics

1. Which is usually the most gentle way of riding out a severe storm on a larger vessel?

- Rig a sea anchor
- Hove to
- Head into the seas at slow speeds
- **Running before the seas**

Note:

Running before the seas minimizes stress on a large vessel during a severe storm by reducing pitching, slamming, and maintaining steerage, making it the most gentle approach compared to other options like heaving to, heading into the seas, or using a sea anchor.

2. The center of volume of the immersed portion of the hull is given which term?

- Center of gravity
- **Center of buoyancy**
- Center of flotation
- Tipping center

Note:

The center of buoyancy defines the center of volume of the immersed portion of a hull. This point represents the upward buoyant force's line of action and is geometrically the center of the displaced water's volume.

3. At all angles of inclination, which is the true measure of a vessel's stability?

- **Righting moment**
- Displacement
- Metacentric height
- Inclining moment

Note:

The righting moment is the true measure of a vessel's stability as it represents the restoring force resisting capsizing at any angle of heel, calculated by displacement multiplied by the righting arm (GZ).

4. Which term defines the difference between the forward and aft drafts?

- **Trim**
- Flotation
- List
- Heel

Note:

Trim defines the difference between forward and aft drafts. Draft is the vertical distance from the waterline to the keel. Trim is the difference between forward and aft drafts, indicating fore-and-aft inclination. List and heel describe transverse inclination due to unequal loading or external forces, respectively. Therefore, trim is the correct answer.

5. When a wind force causes a floating MODU to heel to a static angle, the _____.

- **righting moment equals the wind-heeling moment**
- downflooding point is below water
- centers of buoyancy and gravity are in the same vertical line
- deck-edge immersion occurs

Note:

At a static heel angle caused by wind, the righting moment and the wind-heeling moment are equal.

6. Which action reduces the yawing of a vessel in a following sea?

- **Shifting weights to the stern**
- Pumping out tanks aft
- Increasing GM
- Shifting weights to the bow

Note:

Shifting weights to the stern reduces yawing in a following sea by improving directional stability and rudder effectiveness; trimming by the stern keeps the rudder immersed and increases lateral area aft, while trimming by the bow increases yawing risk. Increasing GM affects rolling stiffness, not yawing, and shifting weights to the bow exacerbates yawing.

7. Advection fog holds longest over which portions of the lakes?

- Southeast
- Northeast
- **Northwest**
- Southwest

Note:

Advection fog persists longest over the northwest portions of the lakes because these areas retain colder water, allowing for prolonged cooling of warm, moist air and fog formation.

8. How are aids to navigation on the Great Lakes arranged geographically?

- In a westerly and northerly direction, except on Lake St. Clair
- In an easterly and southerly direction, except on the New York State Barge Canal
- **In a westerly and northerly direction, except on Lake Michigan**
- In an easterly and southerly direction, except on Lake Erie

Note:

Aids to navigation on the Great Lakes are generally arranged westerly and northerly, with Lake Michigan being the exception.

9. Assume that your vessel has just entered Lake Erie by way of the Welland Canal and is proceeding in a southwesterly direction. Which statement about the aids to navigation you can expect to encounter along the route is TRUE?

- All red even-numbered buoys should be kept on your port side when proceeding in this direction.
- Lighted aids, fog signals, and radio beacons maintained by Canada are not included in the Great Lakes Light List.
- **The characteristics of buoys and other aids are as if "returning from seaward" when proceeding in this direction.**
- All aids are maintained by the U.S. Coast Guard, 9th Coast Guard District, Cleveland, Ohio.

Note:

When proceeding southwest on Lake Erie from the Welland Canal, aids to navigation are oriented as if approaching from seaward, following the upbound direction.

10. Assuming that the recommended hatch loading sequence is followed, how many long tons of iron ore may be loaded through hatch No. 1 while using a single belt loader to arrive at a desired mean keel draft of 29'-11" (use the Guidance Manual for Loading M.V. GRAND HAVEN)

- **2230 tons**
- 2270 tons
- 2310 tons
- 2350 tons

Note:

The correct answer is 2230 long tons, as indicated in the GRAND HAVEN loading guidance tables for iron ore loaded with a single belt loader to achieve a mean draft of 29'-11".
